

Work Order ID 55630

January 26, 2010 9:14:47 AM

Page 1

Item ID: D212-664-101TRN

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Turning Detail

Start Date: 1/26/10 Start Qty: 1.00

Required Date: 2/05/10 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan:

Date: 10-1-26

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D212-664-141

Rev D

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA113
2-Turn first side as per Folio FA113
3-File down transition lines smooth.

Q.M 10 - 01 - 27 ①

110

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

Q.M 10 - 01 - 27 ①

120

MORI SEIKI CNC LATHE LARGE

0.00



Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA113
2-File down transition lines smooth.
3-Remove sand and plugs

Q.M 10 - 01 - 27 ①

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Page 2

Item ID: D212-664-101TRN

Accept

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Start Date: 1/26/10 Start Qty: 1.00

Required Date: 2/05/10 Req'd Qty: 1.00

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

Q.m 10 - 01:27 0

140

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

1 - - AUM10-1-28

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

1 - - AUM10-1-28

Work Order ID 55630

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Page 3

Item ID: D212-664-101TRN

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Turning Detail

Start Date: 1/26/10 Start Qty: 1.00



Cust Item ID:

Required Date: 2/05/10 Req'd Qty: 1.00

Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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160 QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

DP

10-1-27

170 Packaging

0.00



Packaging

Memo

0.00

Packaging Identify and Stock in kanban rack
Location: X-TUBE CELL

1 - Aw M 10-1-27

180 QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/01/29
MF 10-1-28

Picklist Print

January 26, 2010 9:14:51 AM

Page 1

Work Order ID: 55630



Parent Item: D212-664-101TRN



Parent Item Name: Crosstube Turning Detail

Start Date: 1/26/10

Required Date: 2/05/10

Comments: IPP Rev:A 08-03-06 new issue DD verified by:ec
IPP Rev B 08.04.02 removed Polish EC verified by: DD

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6005-128		Manufactured	No			120	Each	8.0000	1.0000			



Crosstube Material



C.N. 0-04-270

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

LG

8

34686

1

38337

1

53593

6

1

DART AEROSPACE LTD		Work Order:	55630
Description: Crosstube Assembly (205/212/412 High Fwd)		Part Number:	D212-664-141
Inspection Dwg: D212-664-141 Rev: E D		Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	0.200	/			
	R0.063	+/-0.010	R0.063	/			
	2.740	+0.005/-0.000	2.740	/			
	5.097	+/-0.030	5.092	/			
	2.304	+0.005/-0.000	2.308	/			
	2.340	+0.005/-0.000	2.345	/			
	2.398	+0.005/-0.000	2.401	/			
	2.448	+0.005/-0.000	2.451	/			
	2.498	+0.005/-0.000	2.500	/			
	2.549	+0.005/-0.000	2.554	/			
	2.599	+0.005/-0.000	2.604	/			
	2.671	+0.005/-0.000	2.675	/			
	2.701	+0.005/-0.000	2.705	/			
SIDE B	0.200	+/-0.010	0.200	/			
	R0.063	+/-0.010	R0.063	/			
	2.740	+0.005/-0.000	2.740	/			
	5.097	+/-0.030	5.092	/			
	2.304	+0.005/-0.000	2.308	/			
	2.340	+0.005/-0.000	2.345	/			
	2.398	+0.005/-0.000	2.401	/			
	2.448	+0.005/-0.000	2.451	/			
	2.498	+0.005/-0.000	2.500	/			
	2.549	+0.005/-0.000	2.554	/			
	2.599	+0.005/-0.000	2.604	/			
	2.671	+0.005/-0.000	2.675	/			
	2.701	+0.005/-0.000	2.705	/			
	126.514	+/-0.020	126.510	/			

Measured by:	0.11
Date:	10-01-28

Audited by:	AWM
Date:	10-1-27

Prototype Approval:	N/A
Date:	N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-101)	KJJ/JLM	
B	06.03.15	Tolerance revised for 5.097 per Dwg Rev update	KJJ/JLM	
C	07.05.28	Dwg Rev updated	KJJ/JLM	

8 7 6 5 4 3 2 1



Item	Qty -141	Qty -141B	Part Number	Description
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6005-128
FINISHED LENGTH = 126.514±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF
USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)
D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS
6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF
D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER
INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1
SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE
SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE
SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR
DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND
MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT
HAS NOT BOTTOMED-OUT AFTER TORQUING.

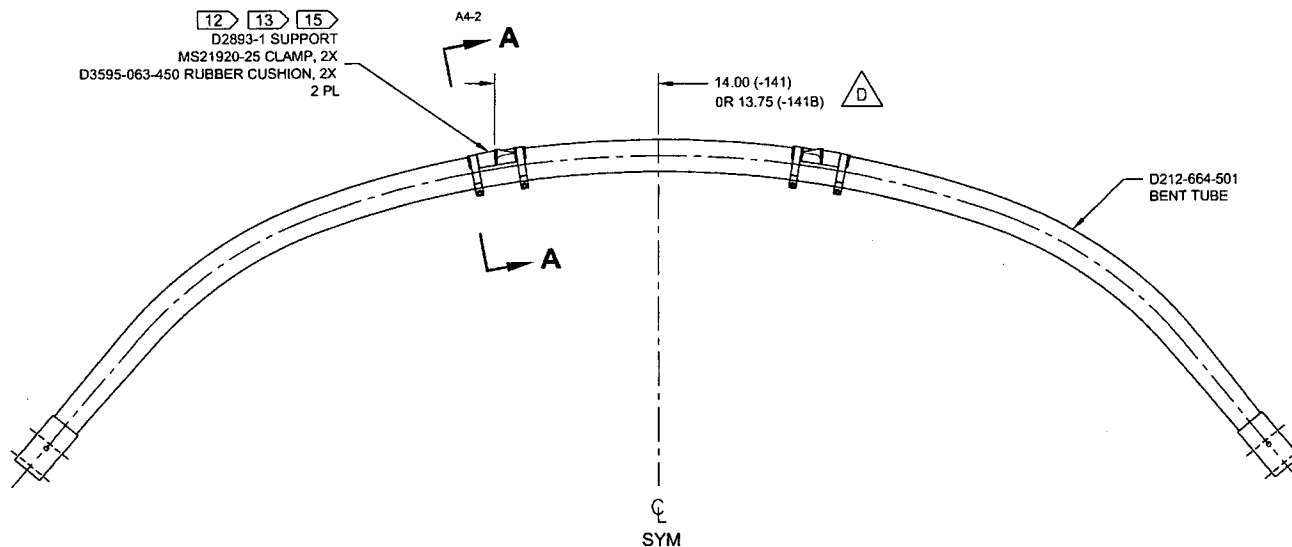
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BS 10-1-24

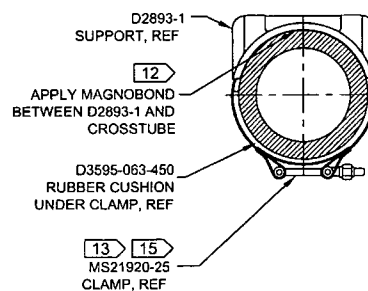
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2009-10-29
MR

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -141B (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, C8-3 & B6-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>PH</i>	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>PH</i>	DRAWING NO.	REV. D
MFG. APPR.	<i>PH</i>	D212-664-141	SHEET 1 OF 4
APPROVED	<i>PH</i>	TITLE	SCALE
DE APPR.	<i>PH</i>	XTUBE ASS'Y (205/212/412 HI FWD)	NTS
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8 7 6 5 4 3 2 1



D212-664-141/-141B
ASSEMBLY DETAIL $\triangle D$



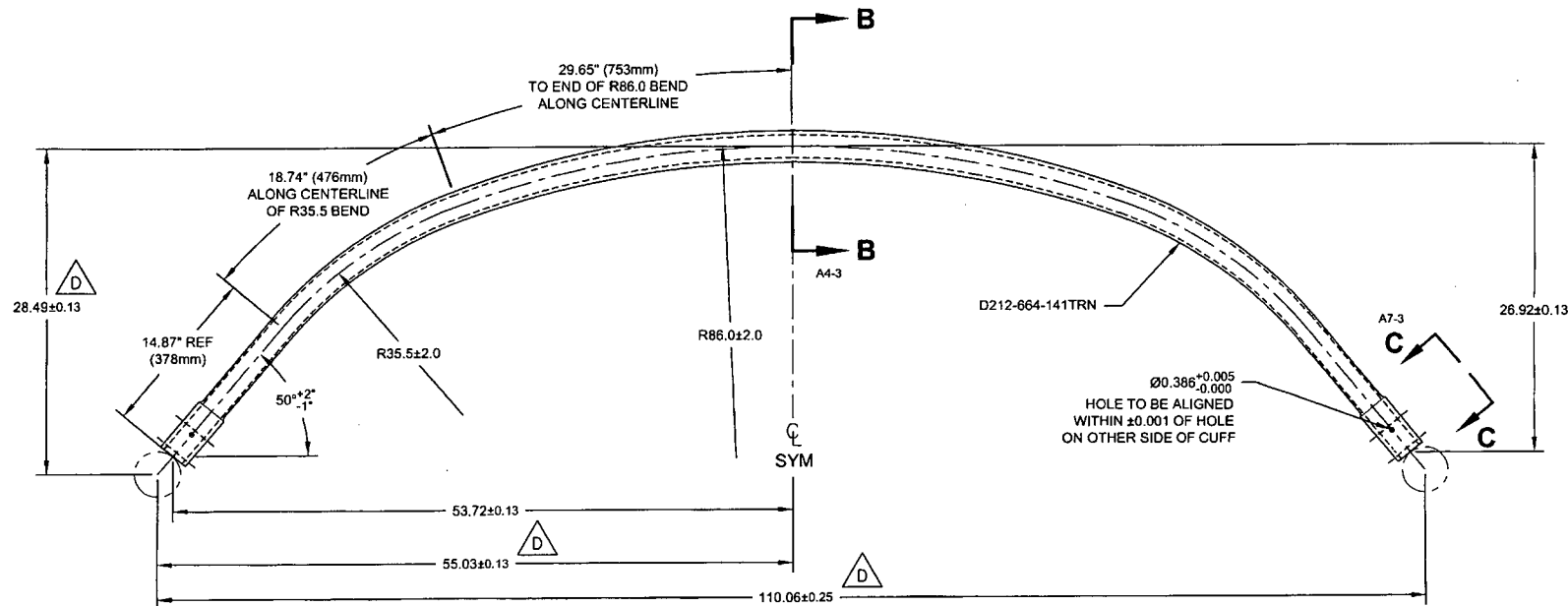
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SCALE 4X

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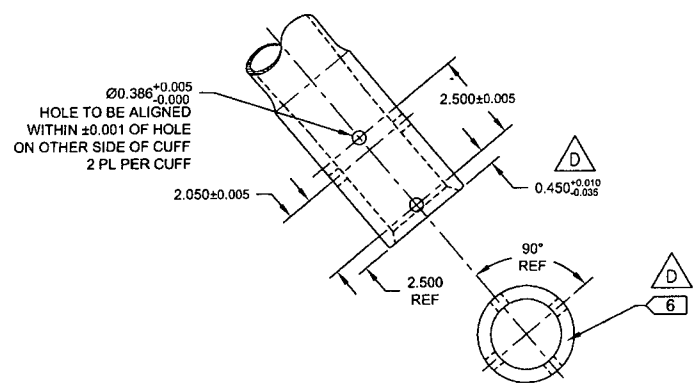
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DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JP	DRAWING NO.	REV. D
MFG. APPR.	DS	D212-664-141	SHEET 2 OF 4
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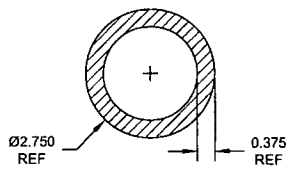
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D212-664-501
BENDING AND DRILLING DETAIL 10 D



VIEW C-C: CUFF DETAIL C2-3
 SCALE 3X



SECTION B-B C4-3
 SCALE 4X

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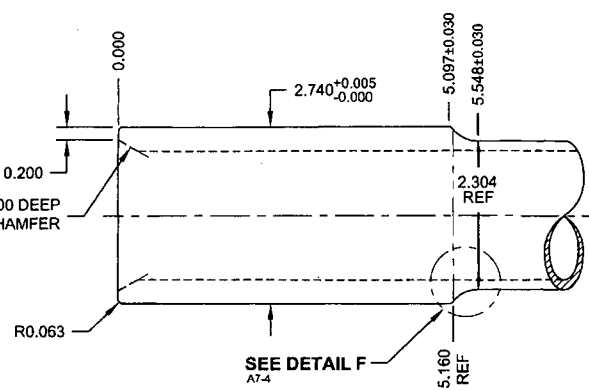
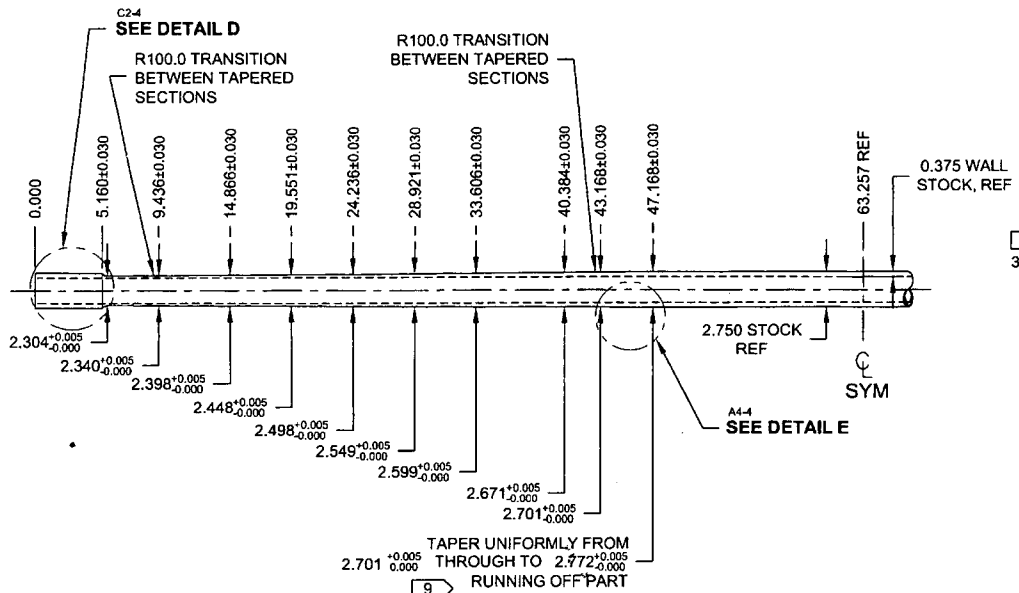
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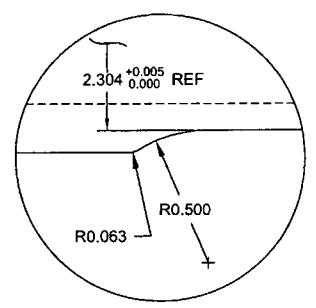
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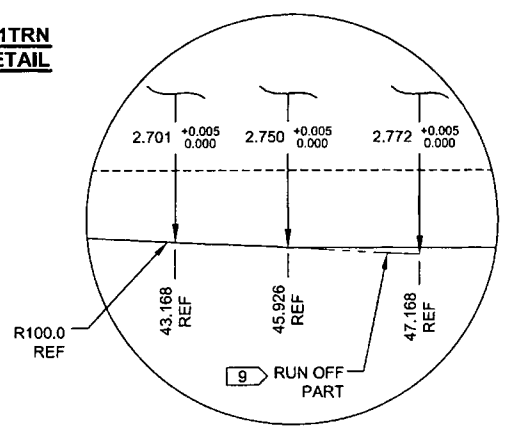


**DETAIL D:
CROSSTUBE CUFF** D8-4
SCALE 5X



**DETAIL F:
CUFF TRANSITION** C2-4
SCALE 10X

**D212-664-141TRN
TURNING DETAIL**



**DETAIL E:
TAPER RUN-OFF** CS-4
NOT TO SCALE

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MFG. APPR.	18	D212-664-141	SHEET 4 OF 4
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